Case Docket No. AMAZON.047A
Date: March 1, 2002
Page 1

In re application of	:	Ford, et al.
Appl. No.	:	09/528,127
Filed	:	March 17, 2000
For	:	SYSTEM AND METHOD FOR PRESENTING MULTIPLE-CATEGORY SEARCH RESULTS
Examiner	:	Thuy Pardo
Art Unit	:	2171

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(Date)

Ronald J. Schoenbaum, Reg. No. 38,29

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BOARD OF PATENT APPEALS AND INTERFERENCES
P.O. Box 2327
Arlington, VA 22202

Sir:

Transmitted herewith in triplicate is an <u>Appellants' Brief</u> to the Board of Patent Appeals, together with:
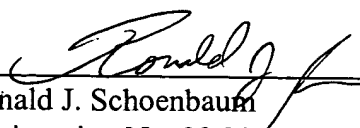
(X)   Copies of two cases cited in the brief;
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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants	:	Ford *et al*	) Group Art Unit: 2171
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Appl. No.	:	09/528,127	)
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APPELLANTS' BRIEF
PURSUANT TO 37 C.F.R. § 1.192

Board of Patent Appeals and Interferences
Washington, D.C. 20231

Dear Sir:

Appellants, Applicants in the above-captioned patent application, appeal the final rejection of Claims 1-33 set forth in the final Office Action mailed on December 17, 2001. A check for the filing fee is enclosed. Please charge any additional fees that may be required now or in the future to Deposit Account No. 11-1410.

I. REAL PARTY IN INTEREST

The real party of interest in the present application is Amazon.com, Inc.

II. RELATED APPEALS AND INTERFERENCES

An appeal is currently pending in U.S. Application No. 09/532,230, which is assigned to the same Examiner and is owned by the same assignee as the present application. Both applications generally involve search engine systems and methods. Appellants do not believe the Board's decision in either one of these two applications will affect the Board's decision in the other.

III. <u>STATUS OF CLAIMS</u>

Claims 1-33 are currently pending in the application, and are attached hereto as an appendix. All of the pending claims were finally rejected by the Examiner and are the subject of this appeal.

IV. <u>STATUS OF AMENDMENTS</u>

In response to the first Office Action, Appellants amended dependent Claim 19 (to correct an antecedent basis error) and added Claims 22-33. Appellants did not amend any claim in response to the final Office Action.

V. <u>SUMMARY OF THE INVENTION</u>

The present invention relates to computer-implemented methods for processing, and presenting the results of, a search query. The invention may be used when a user conducts a query-based search in which the search results include items from multiple item categories (referred to herein as "multiple-category search results"). For example, the invention may be used to rank and arrange the results of a product database search in which the search results (matching products) include products from two or more different product categories.

In a preferred embodiment, the user's search query is processed as follows. Initially, the search query is used to identify, within each of multiple item categories, a set of items that satisfy the query. The items may, but need not, be products represented in a database. The sets of items are then used to generate, for each of the multiple categories, a score that indicates a level significance or relevance of the category to the search. The scores may be based, for example, on the number of hits (items satisfying the search query) within each category relative to the total number of items in that category, on the popularity levels of items that satisfy the query (as discussed below), or on a combination thereof. See, e.g., page 3, lines 2-8 (all references are to the present application unless indicated otherwise).

The categories and associated items are then presented to the user in an order that depends upon the scores – preferably from highest-to-lowest significance. Other significance criteria, such as a category preferences profile of the user, may additionally be used to select the

display order. In addition, other display methods for highlighting the most highly ranked categories may additionally or alternatively be used. See page 3, lines 9-13, and Figure 6.

The categories are preferably presented on a search results page together with associated search result items. For instance, matching book titles may be displayed under the category identifier "books," while matching video titles may be displayed under the identifier "videos" (see Figure 3, discussed below). To assist the user in efficiently viewing a cross section of the located items and their categories, no more than N items (e.g., the most highly ranked three items) within each category are preferably displayed. See page 3, lines 16-19.

Figure 3 illustrates an example search results page generated in accordance with one embodiment of the invention. In this particular example, the user is conducting a search of a products database to locate products characterized by the query "Mark Twain." As illustrated, the search has uncovered products falling in multiple product categories: books, videos, auctions and music. These categories are presented on the search results page in a display order that is dependent upon the relevance or significance of each such category to the query, as determined by a query server based upon predefined criteria. For instance, the "books" category is displayed first (together with selected search result items 312-316 falling in the "books" category), indicating that the query server found the "books" category to be the most significant or relevant category in which matching products were found.

The invention increases the likelihood that the item categories that are of most interest to the user will be presented near the top of the search results listing, or otherwise called to the attention of the user. See page 3, lines 14-16. As a result, the user is more likely to quickly and efficiently locate the most relevant items and item categories among the search results.

One particular aspect of the invention involves using the "popularity levels" of the search result items as a basis for determining the category significance levels. This aspect of the invention is defined by the claims of Group 2, as set forth below. To determine the popularity level of an item, the server system monitors and logs user actions that evidence user affinities for that item. These actions may include, for example, selecting the item from a list of search results, placing the item in a shopping cart, or purchasing the item. See page 27, lines 12-21, and Claim 5. Thus, based on the actions of a large number of users over a period of time, popularity scores may be generated and stored for items in the database. When a user conducts a search, the

popularity levels of some or all of the matching items within each category may be used (possibly in addition to other criteria) to determine the significance level of that category. See page 32, line 13 to page 33, line 13.

Details of an example search engine that embodies the foregoing features are set forth from page 23, line 6 to page 40, line 3.

The present application also discloses inventive methods for assisting users in locating web sites or pages from which user-specified products may be purchased; these methods are the subject of a separate "sister" application (No. 09/528,138 filed March 17, 2000), and are not pertinent to this appeal.

VI.   ISSUES PRESENTED ON APPEAL

The following issue is presented:

Whether Claims 1-33 are properly rejected under 35 U.S.C. § 103 as unpatentable over Schultz (U.S. Patent No. 5,640,553) in view of Ballard (U.S. Patent No. 6,182,050).

VII.   GROUPING OF CLAIMS

All of the rejected claims in the present application should not stand or fall together. Appellants, for purposes of this appeal only, are grouping the claims as follows:

GROUP 1:   Claims 1, 2, 6-13, 16, 17, 20 and 21. These claims are directed generally to a system and method for processing a search query. Search result items within each of multiple categories are used to determine category significance levels, and the categories are presented to the user according to these category significance levels (e.g., by displaying the categories from highest to lowest significance level, together with corresponding search result items).

GROUP 2:   Claims 3-5, 14, 15, 18, 19 and 22-33. These claims are directed generally to similar subject matter, but require that the categories be presented to the user in an order that is dependent upon the popularity levels of located items. Some of these claims further specify types of user actions monitored to determine such item popularity levels.

Appellants believe many of the dependent claims further define over the applied references; however, in the interest of administrative economy and efficiency, Appellants wish to narrow the issues by grouping the claims as set forth above.

VIII. ARGUMENT

A. THE GROUP 2 CLAIMS ARE PATENTABLY SEPARATE FROM THE CLAIMS OF GROUP 1

As set forth above, the claims of Group 2 require that the categories be presented to the user in an order that is dependent upon the popularity levels of located items (unlike the Group 1 claims). This feature of the Group 2 claims provides a separate basis for patentability. Thus, although the claims of Groups 1 and 2 both involve similar subject matter, the two groups of claims are separately patentable.

B. DISCUSSION OF REFERENCES RELIED UPON BY EXAMINER

In rejecting the claims, the Examiner relied on the following references:

1. Schultz

The Schultz patent discloses various features that may be incorporated into a search engine system. The portion of Schultz relied on by the Examiner discloses a process in which relevance scores are generated for each of the items (document files) located by a search, and are used to determine an order in which these files are to be presented to the user/searcher. The relevance score for each file is based in part on the relative proximity within the file of the query terms.

Significantly, Schultz does not disclose or suggest ranking or scoring the categories of the search result items (document files). Schultz also fails to disclose or suggest a process for selecting an order in which to present such categories to users.

2. Ballard

The Ballard patent discloses a service for selecting advertisements to display to computer users. Users of the service provide demographic data specifying, among other things, their respective affinities for various categories of products and services. One or more advertisers supply advertisements to the service, together with target criteria information that specifies the

types of users to which each such advertisement should be displayed. This target criteria information may be in the form of desired demographic information, a desired affinity ranking, or a target criteria filter. Ballard at col. 2, lines 11-15. The service uses the demographic information supplied by users and the target criteria information provided by the advertisers to select specific advertisements to be displayed to specific users.

As with Schultz, Ballard does not disclose or suggest ranking or scoring categories of search result items, and does not disclose or suggest a process for selecting an order in which to present such categories to users. In fact, Ballard does not even appear to involve the processing of search queries. In this regard, Ballard does falls outside the "field of the invention" identified in the present application.

C.   DISCUSSION OF THE ISSUES ON APPEAL

For the reasons set forth below, Appellants respectfully submit that the teachings of the Schultz and Ballard patents do not render the present invention obvious. Copies of the cited cases are enclosed.

1.   The references relied upon by the Examiner do not disclose or suggest every limitation in any claim of Group 1

In order to establish prima facie obviousness of a claimed invention, all of the claim limitations must be taught or suggested by the prior art. See MPEP § 2143.03. In this case, the combination of Schultz and Ballard fails to satisfy this basic requirement.

With respect to Claim 1, for example, neither Schultz nor Ballard discloses or suggests "using at least the sets of items identified ... to determine category significance levels that indicate, for each of the plurality of categories, a level of significance of the category to the query," as set forth in sub-paragraph (b). In connection with this claim language, the Examiner asserts that Ballard "teaches a level of significance of the category (a desired affinity ranking or a target criteria filter, ab; col. 2. lines 10-21) to the query." (Final Office Action at page 4, section 11, emphasis added.) Appellants respectfully disagree. The desired affinity rankings and target criteria filters disclosed in Ballard do not represent "a level of significance of a category to [a] query." In fact, Ballard does not even disclose a search query.

In addition, these desired affinity rankings and target criteria filters are not determined "using at least the sets of items" that satisfy the search query, as required by the above-quoted portion of the claim. Rather, they appear to merely represent criteria specified by an advertiser for selecting target users to whom an advertisement should be presented. The Examiner appears to disregard this limitation of Claim 1.

Schultz and Ballard also fail to disclose or suggest "presenting the plurality of categories to the user, together with associated items that satisfy the search query, in a display order which depends upon the category significance levels," as set forth in sub-paragraph (c) of Claim 1. In this regard, the relevance ranking disclosure of Schultz appears to deal only with the ordering of the search result items (documents) themselves, and not the ordering of the categories in which such items fall. Ballard similarly does not involve the ordering of categories for display.

Schultz and Ballard also fail to disclose limitations recited in independent Claims 9 and 17. With respect to independent Claim 9, for example, neither Schultz nor Ballard discloses or suggests "determining, for each of the plurality of categories, a level of significance of the category to the query." In addition, Schultz and Ballard fail to disclose or suggest "displaying the plurality of categories and associated items to the user according to at least the category significance levels."

With respect to independent Claim 17, neither Schultz nor Ballard discloses or suggests a query server that does either of the following: "(b) for each of the multiple categories, determines a level of significance of the category to the query," or "(c) displays the multiple categories to the user in a display order which depends upon the category significance levels."

Schultz and Ballard also fail to disclose or suggest many of the limitations recited in the dependent claims of Group 1.

2.   **The references relied upon by the Examiner do not disclose or suggest every limitation of any claim in Group 2.**

To the extent that the Group 2 claims recite the limitations discussed above, the Group 2 claims are patentable for the reasons set forth above.

In addition, all of the claims in Group 2 require that the presentation order of the categories be dependent upon the popularity levels of located items. For instance, independent Claim 29 recites "selecting an order in which to present the multiple items to the user such that

the order is dependent upon the popularity levels of the responsive items." This feature is not disclosed or suggested by either Schultz or Ballard.

In connection with this aspect of the Group 2 claims, the Examiner merely asserts that "Ballard teaches determining <u>category</u> popularity levels that indicate for each of a plurality of categories [a desired affinity ranking or a target criteria filter, ab; col. 2. lines 25-45]." (Emphasis added). This assertion disregards the plain language of the subject claims, which requires the use of <u>item</u> popularity levels in determining the category presentation order. Indeed, neither Schultz nor Ballard teaches the generation or use of item popularity levels to determine how item categories should be presented to users.

Further, the "desired affinity rankings" and "target criteria filters" disclosed in Ballard do not represent "popularity levels." In support of this position, Appellants offer the following definitions from Webster's New Encyclopedic Dictionary (1993):

Popularity: the quality or state of being popular

Popular: (1) of, relating to, or coming from the whole body of people

Because the desired affinity rankings/target criteria filters of Ballard merely represent information specified by individual advertisers, they cannot reasonably be characterized as "popularity levels."

3.   **The Examiner has engaged in impermissible picking and choosing of limitations from Schultz and Ballard, without regard to the overall teachings of these references.**

In seeking to show the obviousness of an invention, it is impermissible to "pick and choose from any one reference only so much of it as will support a given position to the exclusion of the other parts necessary to the full appreciation of what such reference fairly suggests to one of skilled in the art." <u>Bausch & Lomb v. Barnes-Hind/Hydrocurve</u>, 230 USPQ 416, 419 (Fed. Cir. 1986).

In attempting to show that Schultz and Ballard disclose all of the limitations of the claims in Groups 1 and 2, the Examiner has engaged in such impermissible picking and choosing. For

instance, although neither Schultz nor Ballard discloses the ordering or ranking of item categories according to level of significance to a search query, the Examiner has pieced together isolated disclosures in these references to reject the Group 1 claims. In doing so, the Examiner has disregarded the fact that Ballard is directed to the selection of advertisements to display to users, and not to the processing of search queries.

Obviousness is properly tested by "what the combined teachings of the references would have suggested to those of ordinary skill in the art." In re Keller, 208 USPQ 871 (CCPA 1981). Under this test, the Schultz and Ballard patents do not render obvious any claim of the present application.

4. **The Examiner has not identified a valid suggestion for combining the cited references, and no such suggestion exists in the references.**

Appellants further respectfully submit that in rejecting the claims of Groups 1 and 2, the Examiner has failed to identify a sufficient suggestion or motivation to combine or modify Schultz and Ballard. Appellants further submit that no such suggestion or motivation exists within these references.

As set forth in MPEP 2143.01, in order to establish obviousness based on a combination of references, the prior art must suggest the <u>desirability</u> of the claimed combination. "The mere fact that references <u>can</u> be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination." MPEP 2143.01 (emphasis original). In this case, the Examiner has failed to identify any such suggestion.

In the first Office Action (dated May 9, 2001), the Examiner appears to take the position that Schultz and Ballard are combinable under § 103 because the combination would provide an efficient means to call to the user's attention "all related items that satisfy the query from different categories." First Office Action at paragraph 5. The Examiner's assertion, however, fails to consider the desirability of bringing the <u>categories</u> to the user's attention as set forth in the rejected claims.

As described in the present application and reiterated above, an important benefit of this feature is that it "increases the likelihood that the categories that are of most interest to the user will be presented near the top of the search results listing, or otherwise called to the attention of the user." See page 3, lines 14-16 of the present application. This important benefit is neither

taught nor suggested by Schultz and/or Ballard. In fact, neither reference appears to even suggest informing the user of the categories to which the search results correspond.

In the final Office Action, the Examiner provides the following additional explanation for why Schulz and Ballard can be combined: "In this case, both Schultz and Ballard refer to documents retrieved from an information retrieval system in response to request from end users." Final Office Action at page 5. This explanation again ignores the requirement that the prior art suggest the desirability of the claimed invention. Further, under the Examiner's reasoning, *any* two references can be combined if both refer to the retrieval of a "document" (which the Examiner construes broadly to include an electronic advertisement). Under such a rule, almost any two references involving user-level software could be properly combined, as nearly all user-level software provides functionality for retrieving documents from storage.

IX. CONCLUSION

For the reasons set forth above, Appellants submit that the rejection of Claims 1-33 over Schultz and Ballard is improper, and request that the rejection be reversed.

Respectfully submitted,

KNOBBE, MARTENS, OLSON & BEAR, LLP

Dated: 3 - 1 - 02   By: _____
                                Ronald J. Schoenbaum
                                Reg. No. 38,297
                                Attorney of Record
                                620 Newport Center Drive, Suite 1600
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APPENDIX – PENDING CLAIMS

1. A computer-implemented method for processing a search query received from a user, comprising:

(a) identifying, within each of a plurality of categories, a set of items that satisfy the search query;

(b) using at least the sets of items identified in (a) to determine category significance levels that indicate, for each of the plurality of categories, a level of significance of the category to the query; and

(c) presenting the plurality of categories to the user, together with associated items that satisfy the search query, in a display order which depends upon the category significance levels determined in (b).

2. The method as in Claim 1, wherein (c) further comprises determining the display order based on a profile of the user.

3. The method as in Claim 1, wherein (b) comprises:

determining, for at least one category of the plurality of the categories, item popularity scores for the corresponding set of items that satisfy the query; and

using the item popularity scores to determine the category significance level for the category.

4. The method as in Claim 3, wherein the item popularity scores are based on at least one type of user activity that evidences user affinities for particular items.

5. The method as in Claim 4, wherein the at least one type of user activity comprises at least one of the following: (i) selecting an item from a list of search results, (ii) placing an item in a shopping cart, and (iii) purchasing an item.

6. The method as in Claim 1, wherein (b) comprises:

determining, for at least one category of the plurality of the categories, a number of items that satisfy the query; and

generating for the category a score which is based on at least said number of items that satisfy the query relative to a total number of items within the category.

7. The method as in Claim 1, wherein (c) comprises displaying, for at least one of the plurality of categories, only a selected subset of the items that satisfy the query.

8. The method as in Claim 1, wherein the items include products.

9. A computer-implemented method of processing a search query received from a user, comprising:

(a) identifying, within each of a plurality of categories, items that satisfy the search query;

(b) determining, for each of the plurality of categories, a level of significance of the category to the query; and

(c) displaying the plurality of categories and associated items to the user according to at least the category significance levels determined in (b).

10. The method as in Claim 9, wherein (c) comprises displaying the categories in a display order which depends upon the category significance levels.

11. The method as in Claim 10, wherein (c) comprises displaying categories from highest to lowest category significance level.

12. The method as in Claim 10, wherein (c) further comprises determining the display order based on a profile of the user.

13. The method as in Claim 9, wherein (c) comprises displaying the categories using varying prominence levels that depend upon the category significance levels.

14.   The method as in Claim 9, wherein (b) comprises:

determining, for at least one category of the plurality of the categories, item popularity scores for items that satisfy the query; and

using the item popularity scores to determine the category significance level for the category.

15.   The method as in Claim 14, wherein the item popularity scores are based on at least one type of user activity that evidences user affinities for particular items.

16.   The method as in Claim 9, further comprising determining whether the query is satisfied by any web pages that, based on a set of rules, have been determined to within a selected level of confidence to include product offerings.

17.   A search engine system, comprising:

a repository of items that are arranged within categories; and

a query server that at least (a) identifies, within each of multiple categories of the repository, items that satisfy a search query received from a user, (b) for each of the multiple categories, determines a level of significance of the category to the query, and (c) displays the multiple categories to the user in a display order which depends upon the category significance levels.

18.   The search engine system as in Claim 17, wherein the query server determines the significance levels based on at least popularity levels of items that satisfy the query.

19. (Amended) The search engine system as in Claim 18, further comprising a component that determines the item popularity levels based on at least one of the following types of user activity: (i) selecting an item from a list of search results, (ii) placing an item in a shopping cart, and (iii) purchasing an item.

20.   The search engine system as in Claim 17, wherein the query server further selects the display order based on a profile of the user.

21.   The search engine system as in Claim 17, wherein the repository comprises a least one database of products sold by a merchant.

22.   A method of processing a search query specified by a user of an electronic catalog of items, the method comprising:

identifying catalog items that are responsive to the query, including catalog items from multiple categories;

determining an order in which to present the multiple categories to the user such that the order is dependent upon popularity levels of responsive catalog items among a plurality of users of the electronic catalog; and

outputting the multiple categories in said order, together with corresponding catalog items that are responsive to the search query, for presentation to the user.

23.   The method as in Claim 22, wherein the popularity levels are determined based on an automated analysis of browsing activities of the plurality of users of the electronic catalog.

24.   The method as in Claim 22, further comprising, prior to processing the search query, analyzing browsing activities of the plurality of users of the electronic catalog to determine the popularity levels of items in the catalog.

25.   The method as in Claim 24, wherein analyzing browsing activities comprises determining the popularity levels based on a current set of user activity data, such that the popularity levels reflect current interests of users.

26.   The method as in Claim 22, wherein outputting the multiple categories to the user in said order comprises generating a display in which the multiple categories are displayed in said order.

27.   The method as in Claim 22, wherein the order is determined based further upon a profile of the user.

28.   A web page generated according to the method of Claim 22.

29.   A method of facilitating searches for items within an electronic catalog in which items are arranged within categories, the method comprising:

monitoring actions performed by a plurality of users with respect to items in the electronic catalog, and based on such actions, determining popularity levels of items in the catalog;

receiving a search query specified by a user, and identifying a set of items in the electronic catalog that are responsive to the search query ("responsive items"), including items from multiple categories; and

selecting an order in which to present the multiple categories to the user such that the order is dependent upon the popularity levels of the responsive items.

30.   The method as in Claim 29, wherein the order is selected based further upon a profile of the user.

31.   The method as in Claim 29, wherein the order is selected based further upon a number of responsive items falling within each of the multiple categories.

32.   The method as in Claim 29, further comprising generating a web page in which at least some of the responsive items are displayed to the user arranged by category in said order.

33.   A web page generated according to the method of Claim 29, said web page displaying responsive items arranged by category in said order.